

000  
000000  
7FF7F8  
3E17F1  
7F17F8  
7F8

7F1

7F8  
7F8

7F1

7F1  
7E1

7F1

7F1

1

1

1

1

1

1

1

1

1

1

10

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1



```

LL          IIIIII      SSSSSSSS
LL          IIIIII      SSSSSSSS
LL          II         SS
LL          II         SS
LL          II         SS
LL          II         SS
LL          II         SSSSSS
LL          II         SSSSSS
LL          II         SS
LL          II         SS
LL          II         SS
LL          II         SS
LLLLLLLLLLL IIIIIIII   SSSSSSSS
LLLLLLLLLLL IIIIIIII   SSSSSSSS

```

(2)	48	DECLARATIONS
(2)	52	MACROS
(3)	138	DATA STORAGE AND MESSAGE STRINGS
(6)	259	INITIALIZATION
(7)	307	EXPAND/CONTRACT REGION TEST
(8)	318	FORCE ERRORS FROM EXPREG/CNTREG
(10)	343	SUBROUTINES TO CALL THE SERVICES
(13)	457	MISCELLANEOUS SUBROUTINES



```
0000 1 : MEMORY MANAGEMENT SERVICES TEST #5
0000 2 :
0000 3 : .TITLE MMGEXPCNT - TEST OF $EXPREG/$CNTREG SYSTEM SERVICES
0000 4 : .IDENT 'V04-000'
0000 5 :
0000 6 : *****
0000 7 : *
0000 8 : * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY *
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0000 24 : * SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL. *
0000 25 : *
0000 26 : *
0000 27 : *****
0000 28 :
0000 29 : ++
0000 30 : FACILITY: USER MODE MEMORY MANAGEMENT SERVICES TEST
0000 31 :
0000 32 : ABSTRACT: THIS SET OF ROUTINES TESTS THE MEMORY MANAGEMENT SERVICES
0000 33 :
0000 34 : ENVIRONMENT: USER MODE DIAGNOSTIC
0000 35 :
0000 36 : AUTHOR: PETER H. LIPMAN , CREATION DATE: 6-JAN-77
0000 37 :
0000 38 : MODIFIED BY:
0000 39 :
0000 40 : V02-012 SHZ0004 Stephen Zalewski 20-Aug-1980
0000 41 : Incorporated this program into MMG test package.
0000 42 :
0000 43 : V02-012 TSC0004 Thomas Clark 25-Jul-1980
0000 44 : Added further tests to system services tested in this
0000 45 : program.
0000 46 :
```

```
0000 48 .SBTTL DECLARATIONS
0000 49 :
0000 50 : INCLUDE FILES:
0000 51 :
0000 52 : .SBTTL MACROS
0000 53 :
0000 54 : MACROS:
0000 55 :
0000 56 .MACRO LIST
0000 57 .LIST MEB
0000 58 .ENDM LIST
0000 59
0000 60 .MACRO NLIST
0000 61 .NLIST MEB
0000 62 .ENDM NLIST
0000 63
0000 64 .MACRO DELTVA STARTVA,ENDVA,STATUS=S^#SS$_NORMAL,-
0000 65 INADR=W^INRANGE,RETADR=W^RETRANGE
0000 66 LIST
0000 67 .IF NB,STARTVA
0000 68 MOVL STARTVA,W^INRANGE
0000 69 .ENDC
0000 70 .IF NB,ENDVA
0000 71 MOVL ENDVA,W^INRANGE+4
0000 72 .ENDC
0000 73 MOVZWL STATUS,R3
0000 74 MOVAL INADR,R0
0000 75 MOVAL RETADR,R1
0000 76 BSBW DELTVASUBR
0000 77 NLIST
0000 78 .ENDM DELTVA
0000 79
0000 80 .MACRO CNTREG PAGCNT,REGION=#0,STATUS=S^#SS$_NORMAL,-
0000 81 RETADR=W^RETRANGE
0000 82 LIST
0000 83 MOVZWL STATUS,R3
0000 84 MOVL PAGCNT,R4
0000 85 MOVAL RETADR,R1
0000 86 .IF IDN,<REGION>,<#0>
0000 87 CLRL R5
0000 88 .IFF
0000 89 MOVL REGION,R5
0000 90 .ENDC
0000 91 BSBW CNTREGSUBR
0000 92 NLIST
0000 93 .ENDM CNTREG
0000 94
0000 95 .MACRO EXPREG PAGCNT,REGION=#0,STATUS=S^#SS$_NORMAL,-
0000 96 RETADR=W^RETRANGE
0000 97 LIST
0000 98 MOVZWL STATUS,R3
0000 99 MOVL PAGCNT,R4
0000 100 MOVAL RETADR,R1
0000 101 .IF IDN,<REGION>,<#0>
0000 102 CLRL R5
0000 103 .IFF
0000 104 MOVL REGION,R5
```

```
0000 105 .ENDC
0000 106 BSBW EXPREGSUBR
0000 107 NLIST
0000 108 .ENDM EXPREG
0000 109
0000 110 .MACRO RANGECHK ONOROFF
0000 111 LIST
0000 112 .IF IDN <ONOROFF>,<OFF>
0000 113 BICL #CTLSM_RNGCHK,W^CTLFLG
0000 114 .IFF
0000 115 BISL #CTLSM_RNGCHK,W^CTLFLG
0000 116 .ENDC
0000 117 NLIST
0000 118 .ENDM RANGECHK
0000 119
0000 120 :
0000 121 : EQUATED SYMBOLS:
0000 122 :
0000 123 $$$DEF
0000 124 $SECDEF
0000 125 $PRTDEF
0000 126 $GBLINI
0000 127 $VIELD CTL,0,<-
0000 128 <MEMLOOP,,MASK>,-
0000 129 <TSTLOOP,,MASK>,-
0000 130 <PIDMSG,,MASK>,-
0000 131 <RNGCHK,,MASK>-
0000 132 >
0000 133 PRT$C_NONE=104
0000 134 :
0000 135 : OWN STORAGE:
0000 136 :
```

```
:DEFINE CONTROL BITS IN R3
:LOOP IN MEMORY WRITE LOOP
:REDO ENTIRE TEST FROM TOP
:PUT PROCESS ID IN EACH TYPEOUT
:ON IF CHECKING RETURN RANGE
```

00000010



```
0000 138 .SBTTL DATA STORAGE AND MESSAGE STRINGS
00000000 139 .PSECT DATA0,PAGE,WRT,NOEXE
0000 140 INRANGE:
00000008 0000 141 .BLKL 2
0008 142 RETRANGE:
00000010 0008 143 .BLKL 2
00000006 0010 144 CTLFLG: .LONG CTL$M_TSTLOOP!CTL$M_PIDMSG
00000018 0014 145 SAVEND: .BLKL 1
0018 146 HIGHPOADR:
0000001C 0018 147 .BLKL 1 ;LAST BYTE ADDRESS IN PO SPACE
00000020 001C 148 PID: .BLKL 1 ;PROCESS ID
0020 149 MAXPASSCNT:
00000003 0020 150 .LONG 3 ;NUMBER OF PASSES TO RUN
0024 151 PASSCNT:
00000028 0024 152 .BLKL 1 ;PASS COUNTER
0028 153 WRKSETLIM:
0000002C 0028 154 .BLKL 1 ;RETURNED NEW WORKING SET LIMIT
002C 155 WRKSETDEF:
00000044 002C 156 .BLKL 6 ;DEFAULT, MAX, MIN WORKING SET LIMIT
00000034 0044 157 WRKSETMAX=WRKSETDEF+8
0000003C 0044 158 WRKSETMIN=WRKSETDEF+16
0044 159 WRKSETMAXADD:
00000048 0044 160 .BLKL 1 ;WRKSETMAX-WRKSETDEF
0048 161 PREVPROT:
0048 162 FAB: $FAB FAC=PUT, FNA=OUTNAMADR, FNS=OUTNAMSIZ ;FAB FOR OUTPUT
0098 163 RAB: $RAB FAB=FAB ;RECORD ACCESS BLOCK FOR OUTPUT
000000E0 00DC 164 MSGLEN: .BLKL 1 ;RETURN LENGTH FROM FAO
000000FE'000000A0' 00E0 165 MSGBUFD: .LONG MSGBUFSIZ,MSGBUF ;MESSAGE BUFFER DESCRIPTOR
00E8 166 PIDMSGD:
000000FA'00000004' 00E8 167 .LONG MSGBUF-PIDMSG,PIDMSG
00F0 168 ;
00F0 169 ; ***** DO NOT SEPARATE OR REORDER THE FOLLOWING LINES
00F0 170 ;
00F0 171 MSGBUFID:
00F0 172 CRLF: .BYTE ^015,^012
20 53 53 45 43 4F 52 50 00F2 173 .ASCII $PROCESS $
20 20 20 20 00FA 174 PIDMSG: .ASCII $ $
0000019E 00FE 175 MSGBUF: .BLKB 160 ;MESSAGE BUFFER USED BY FAO
000000A0 019E 176 MSGBUFSIZ=-MSGBUF
019E 177 ;
019E 178 ; ***** DO NOT SEPARATE OR REORDER THE PRECEEDING LINES
019E 179 ;
019E 180 ;
00000000 181 .PSECT DATA1,PAGE,WRT,NOEXE
0000 182 ;
0000 183 WRTPAGES:
00000800 0000 184 .BLKL 128*4
0800 185 ;
00000000 186 .PSECT DATA2,PAGE,NOWRT,NOEXE
0000 187 RDPAGES:
00000800 0000 188 .BLKL 128*4
0800 189
```

00000000

191 .PSECT CODE,PAGE,NOWRT,EXE

0000

192

0000

193

OUTNAMADR:

0000

194

.ASCII /SYSS\$OUTPUT/  
OUTNAMSIZ=-OUTNAMADR

0000A

195

0000A

196

0000A

197

DELTVAERRADR:

198

.ASCII \$!/DELTVA ERROR - PC = !XL,STATUS WAS !XL, SHOULD BE !XL\$

0000A

0016

0022

002E

003A

0041

004D

0059

0065

006B

006B

006B

006B

0077

0083

008F

009B

00A3

00AF

00BB

00C7

00C9

00D5

00DD

00DD

00DD

00E9

00F5

0101

010D

0115

0121

012D

0139

013B

0147

014F

014F

014F

015B

0167

0173

0174

0180

018C

0198

019E

019E

019E

019E

019E

019E

019E

019E

019E

019E

019E

019E

199

.ASCII \$!/ INADR = !XL - !XL, RETADR = !XL - !XL!/\$

200

DELTVAERRSIZ=-DELTVAERRADR

201

202

CNTREGERRADR:

203

.ASCII \$!/CNTREG ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL\$

204

.ASCII \$!/ PAGCNT = !UL, REGION = P!UB SPACE, \$

205

.ASCII \$RETADR = !XL - !XL!/\$

206

CNTREGERRSIZ=-CNTREGERRADR

207

208

EXPREGERRADR:

209

.ASCII \$!/EXPREG ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL\$

210

.ASCII \$!/ PAGCNT = !SL, REGION = P!UB SPACE, \$

211

.ASCII \$RETADR = !XL - !XL!/\$

212

EXPREGERRSIZ=-EXPREGERRADR

213

214

RANGERRADR:

215

.ASCII \$!/RETURN RANGE ERROR - LOCATION = !XL\$

216

.ASCII \$!/ INADR = !XL - !XL, RETADR = !XL - !XL!/\$

217

RANGERRSIZ=-RANGERRADR

218

54 55 50 54 55 4F 24 53 59 53  
0000000A52 52 45 20 41 56 54 4C 45 44 2F 21  
58 21 20 3D 20 43 50 20 2D 20 52 4F  
53 41 57 20 53 55 54 41 54 53 2C 4C  
44 4C 55 4F 48 53 20 2C 4C 58 21 20  
21 20 3D 20 52 44 41 4E 49 09 2F 21  
45 52 20 2C 4C 58 21 20 2D 20 4C 58  
2D 20 4C 58 21 20 3D 20 52 44 41 54  
2F 21 4C 58 21 20  
0000006152 52 45 20 47 45 52 54 4E 43 2F 21  
58 21 20 3D 20 43 50 20 2D 20 52 4F  
41 57 20 53 55 54 41 54 53 20 2C 4C  
4C 55 4F 48 53 20 2C 4C 58 21 20 53  
20 3D 20 54 4E 43 47 41 50 09 2F 21  
20 4E 4F 49 47 45 52 20 2C 4C 55 21  
45 43 41 50 53 20 42 55 21 50 20 3D  
4C 58 21 20 3D 20 52 44 41 54 45 52  
2F 21 4C 58 21 20 2D 20  
0000007252 52 45 20 47 45 52 50 58 45 2F 21  
58 21 20 3D 20 43 50 20 2D 20 52 4F  
41 57 20 53 55 54 41 54 53 20 2C 4C  
4C 55 4F 48 53 20 2C 4C 58 21 20 53  
20 3D 20 54 4E 43 47 41 50 09 2F 21  
20 4E 4F 49 47 45 52 20 2C 4C 53 21  
45 43 41 50 53 20 42 55 21 50 20 3D  
4C 58 21 20 3D 20 52 44 41 54 45 52  
2F 21 4C 58 21 20 2D 20  
000000724E 41 52 20 4E 52 55 54 45 52 2F 21  
4C 20 2D 20 52 4F 52 52 45 20 45 47  
58 21 20 3D 20 4E 4F 49 54 41 43 4F  
21 20 3D 20 52 44 41 4E 49 09 2F 21  
45 52 20 2C 4C 58 21 20 2D 20 4C 58  
2D 20 4C 58 21 20 3D 20 52 44 41 54  
2F 21 4C 58 21 20  
0000004F



```
43 20 54 4F 4E 20 45 47 41 50 2F 21 019E 219 DMDZERRADR:
4E 41 4D 45 44 20 44 45 54 41 45 52 019E 220 .ASCII $!/PAGE NOT CREATED DEMAND ZERO!/$
2F 21 4F 52 45 5A 20 44 01AA
00000020 01B6
01BE 221 DMDZERRSIZ=-DMDZERRADR
01BE 222
01BE 223 IDMSGADR:
01BE 224 .ASCII $!/MEMORY MANAGEMENT SERVICES TEST #5 (EXPCNT), PASS !UL!/$
56 52 45 53 20 54 4E 45 4D 45 47 41 01CA
35 23 20 54 53 45 54 20 53 45 43 49 01D6
50 20 2C 29 54 4E 43 50 58 45 28 20 01E2
2F 21 4C 55 21 20 53 53 41 01EE
00000039 01F7
01F7 225 IDMSGISIZ=-IDMSGADR
01F7 226
01F7 227 RUN1_MSGADR:
228 .ASCII $!/ ***** TEST WILL NOW BE RUN USING REGULAR VA SPACE *****$
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21 01F7
4E 20 4C 4C 49 57 20 54 53 45 54 20 0203
53 55 20 4E 55 52 20 45 42 20 57 4F 020F
20 52 41 4C 55 47 45 52 20 47 4E 49 021B
2A 20 20 20 45 43 41 50 53 20 41 56 0227
2A 2A 2A 2A 0233
20 2F 21 0237
00000043 023A
023A 229 .ASCII $!/ $
023A 230 RUN1_MSGSIZ=-RUN1_MSGADR
023A 231
023A 232 PIDCTLADR:
4C 55 21 023A 233 .ASCII $!UL$
00000003 023D 234 PIDCTLSIZ=-PIDCTLADR
```

	0230	236	:	
	0230	237	:	STRING DESCRIPTORS
	0230	238	:	
	0230	239	:	
	0240	240	:	.ALIGN LONG
	0240	241	:	DELTVAERR:
0000000A'00000061	0240	242	:	.LONG DELTVAERRSIZ,DELTVAERRADR
	0248	243	:	CNTREGERR:
0000006B'00000072	0248	244	:	.LONG CNTREGERRSIZ,CNTREGERRADR
	0250	245	:	EXPREGERR:
000000DD'00000072	0250	246	:	.LONG EXPREGERRSIZ,EXPREGERRADR
	0258	247	:	RANGERR:
0000014F'0000004F	0258	248	:	.LONG RANGERRSIZ,RANGERRADR
	0260	249	:	DMDZERR:
0000019E'00000020	0260	250	:	.LONG DMDZERRSIZ,DMDZERRADR
	0268	251	:	IDMSG:
000001BE'00000039	0268	252	:	.LONG IDMSGSIZ,IDMSGADR
	0270	253	:	RUN1_MSG:
000001F7'00000043	0270	254	:	.LONG RUN1_MSGSIZ,RUN1_MSGADR
	0278	255	:	PIDCTL:
0000023A'00000003	0278	256	:	.LONG PIDCTLSIZ,PIDCTLADR
	0280	257	:	

```
0280 259 .SBTTL INITIALIZATION
0280 260 *****
0280 261 PROGRAM DESCRIPTION:
0280 262
0280 263 THIS PROGRAM TESTS THE FOLLOWING SYSTEM SERVICES:
0280 264 $EXPREG, $CNTREG
0280 265
0280 266 THE PROGRAM DOES SOME SIMPLE EXPAND AND CONTRACT REGIONS TO CHECK
0280 267 THAT THE SERVICES PERFORM CORRECTLY. FOLLOWING THIS THE PROGRAM FORCES
0280 268 POSSIBLE ERROR PATHS FOR THE ABOVE MENTIONED SYSTEM SERVICES. THREE
0280 269 PASSES ARE MADE THROUGH THE TEST LOOP TO ENSURE PATH REPEATABILITY.
0280 270 ONLY REGULAR VA SPACE IS USED IN THIS TEST PROGRAM.
0280 271
0280 272 REFER TO MASDS:[MMGTST.COM]MMGTST.RAP FOR FURTHER INFORMATION
0280 273 REGARDING JUST HOW COMPLETELY THE ABOVE MENTIONED SYSTEM SERVICES
0280 274 ARE TESTED BY THIS PROGRAM.
0280 275
0280 276 *PRIVILEGES:
0280 277 THIS PROGRAM NEEDS NO SPECIAL PRIVILEGES TO EXECUTE.
0280 278 *****
0280 279
0280 280 START HERE
0280 281
0000 0280 282 START: .WORD 0 ;ENTRY MASK
0280 283 $OPEN W^FAB ;OPEN THE FILE '$OUTPUT'
0280 284 BLBC R0,10$ ;BRANCH IF ERROR
0280 285 $CONNECT W^RAB ;CONNECT THE RECORD ACCESS BLOCK
0280 286 BLBS R0,20$
0280 287 10$: $EXIT_S R0 ;EXIT WITH STATUS IN R0
0280 288 20$: MOVL #1,PASSCNT ;INITIALIZE THE PASS COUNT
0280 289 $RESUME_S PID ;SET UP PROCESS ID
0280 290 MOVZWL PID,R0
0280 291 $FAO_S PIDCTL,MSGLEN,PIDMSGD,R0 ;INIT THE PROCESS ID STRING
0280 292
0280 293 : INFORM OPERATOR THAT TESTS WILL BE RUN USING ONLY NORMAL VA SPACE
0280 294 :
0280 295 $FAO_S RUN1 MSG,MSGLEN,MSGBUFD ;INFORM OPR NORMAL VA USED FOR TEST
0280 296 BSBW TYPEMSGBUF
0280 297 BICL #CTL$M_PIDMSG,W^CTLFLG ;STOP PROCESS ID FROM PRINTING
0280 298 RSTART:
0280 299 RANGECHK ON
0280 300 BISL #CTL$M_RNGCHK,W^CTLFLG
0280 301 $FAO_S IDMSG,MSGLEN,MSGBUFD,PASSCNT
0280 302 BSBW TYPEMSGBUF
0280 303 EXPREG #1
0280 304 MOVZWL S^#SS$_NORMAL,R3
0280 305 MOVL #1,R4
0280 306 MOVAL W^RETRANGE,R1
0280 307 CLRL R5
0280 308 BSBW EXPREGSUBR
0280 309 MOVQ W^RETRANGE,R2
0280 310 MOVQ R2,W^INRANGE
0280 311 MOVL R2,W^SAVEND
```

00000024'EF 01 D0 02A7 288 10\$: MOVL #1,PASSCNT

50 0000001C'EF 3C 02BD 290 MOVZWL PID,R0

0010'CF 04 CA 02F5 297 BICL #CTL\$M\_PIDMSG,W^CTLFLG

0010'CF 08 CB 02FA 298 RSTART:

028B 30 031C 301 BSBW TYPEMSGBUF

53 01 3C 031F 302 EXPREG #1

54 01 D0 0322 303 MOVZWL S^#SS\$\_NORMAL,R3

51 0008'CF DE 0325 304 MOVL #1,R4

55 04 032A 305 MOVAL W^RETRANGE,R1

0198 30 032C 306 CLRL R5

52 0008'CF 7D 032F 307 BSBW EXPREGSUBR

0000'CF 52 7D 0334 308 MOVQ W^RETRANGE,R2

0014'CF 52 D0 0339 309 MOVQ R2,W^INRANGE

0014'CF 52 D0 0339 310 MOVL R2,W^SAVEND



```
033E 307 .SBTTL EXPAND/CONTRACT REGION TEST
033E 308
033E 309 : TEST EXPAND/CONTRACT REGION
033E 310 :
033E 311 EXPREG #1,#0 ;EXPAND BY 1 PAGE IN P0 SPACE
51 53 01 3C 033E MOVZWL S^#SS$_NORMAL,R3
54 01 DO 0341 MOVL #1,R4
0008'CF DE 0344 MOVAL W^RETRANGE,R1
55 D4 0349 CLRL R5
0179 30 034B BSBW EXPREGSUBR
0293 30 034E 312 BSBW DMDZERTST ;CHECK FOR DEMAND ZEROING
0351 313 CNTREG #1,#0 ;CONTRACT 1 PAGE P0 SPACE
51 53 01 3C 0351 MOVZWL S^#SS$_NORMAL,R3
54 01 DO 0354 MOVL #1,R4
0008'CF DE 0357 MOVAL W^RETRANGE,R1
55 D4 035C CLRL R5
0150 30 035E BSBW CNTREGSUBR
0361 314 EXPREG #1,#1 ;EXPAND 1 PAGE P1 SPACE
51 53 01 3C 0361 MOVZWL S^#SS$_NORMAL,R3
54 01 DO 0364 MOVL #1,R4
0008'CF DE 0367 MOVAL W^RETRANGE,R1
55 01 DO 036C MOVL #1,R5
0155 30 036F BSBW EXPREGSUBR
026F 30 0372 315 BSBW DMDZERTST ;CHECK FOR DEMAND ZEROING
0375 316 CNTREG #1,#1 ;CONTRACT 1 PAGE P1 SPACE
51 53 01 3C 0375 MOVZWL S^#SS$_NORMAL,R3
54 01 DO 0378 MOVL #1,R4
0008'CF DE 037B MOVAL W^RETRANGE,R1
55 01 DO 0380 MOVL #1,R5
012B 30 0383 BSBW CNTREGSUBR
```

```
0386 318 .SBTTL FORCE ERRORS FROM EXPREG/CNTREG
0386 319 :
0386 320 : FORCE ERRORS FROM EXPAND/CONTRACT REGION
0386 321 :
0386 322 :
53 0C 3C 0386 EXPREG #1,#0,STATUS=$$$$ ACCVIO,RETADR=W^4 ;EXPAND W/INVALID RETADR
54 01 D0 0386 MOVZWL $$$ ACCVIO,R3
51 0004'CF DE 0389 MOVL #1,R4
55 D4 038C MOVAL W^4,R1
0131 30 0391 CLRL R5
0393 BSBW EXPREGSUBR
0396 323 CNTREG #1,#0,STATUS=$$$$ ACCVIO,RETADR=W^4 ;CONTRACT W/INVALID RETADR
53 0C 3C 0396 MOVZWL $$$ ACCVIO,R3
54 01 D0 0399 MOVL #1,R4
51 0004'CF DE 039C MOVAL W^4,R1
55 D4 03A1 CLRL R5
010B 30 03A3 BSBW CNTREGSUBR
03A6 324 EXPREG #-1,#0,STATUS=$$$$ ILLPAGCNT ;EXPAND W/ILLEGAL PAGE COUNT
53 00FC 8F 3C 03A6 MOVZWL $$$ ILLPAGCNT,R3
54 FFFFFFFF 8F D0 03AB MOVL #-1,R4
51 0008'CF DE 03B2 MOVAL W^RETRANGE,R1
55 D4 03B7 CLRL R5
010B 30 03B9 BSBW EXPREGSUBR
03BC 325 CNTREG #-1,#0,STATUS=$$$$ ILLPAGCNT ;CONTRACT W/ILLEGAL PAGE COUNT
53 00FC 8F 3C 03BC MOVZWL $$$ ILLPAGCNT,R3
54 FFFFFFFF 8F D0 03C1 MOVL #-1,R4
51 0008'CF DE 03C8 MOVAL W^RETRANGE,R1
55 D4 03CD CLRL R5
00DF 30 03CF BSBW CNTREGSUBR
03D2 326 EXPREG #1021-1,#0,STATUS=$$$$ VASFULL ;FILL THE PAGE TABLE, P0
53 0244 8F 3C 03D2 MOVZWL $$$ VASFULL,R3
54 001FFFFFFF 8F D0 03D7 MOVL #1021-1,R4
51 0008'CF DE 03DE MOVAL W^RETRANGE,R1
55 D4 03E3 CLRL R5
00DF 30 03E5 BSBW EXPREGSUBR
03E8 327 RANGECHK OFF
0010'CF 08 CA 03E8 BICL #CTL$M RNGCHK,W^CTLFLG
03ED 328 DELTVA INADR=W^RETRANGE ;DELETE WHAT WE CREATED
53 01 3C 03ED MOVZWL S^$$$ NORMAL,R3
50 0008'CF DE 03F0 MOVAL W^RETRANGE,R0
51 0008'CF DE 03F5 MOVAL W^RETRANGE,R1
004D 30 03FA BSBW DELTVASUBR
03FD 329 RANGECHK ON
0010'CF 08 CB 03FD BICL #CTL$M RNGCHK,W^CTLFLG
0402 330 EXPREG #1021-1,#1,STATUS=$$$$ VASFULL ;FILL THE PAGE TABLE, P1
53 0244 8F 3C 0402 MOVZWL $$$ VASFULL,R3
54 001FFFFFFF 8F D0 0407 MOVL #1021-1,R4
51 0008'CF DE 040E MOVAL W^RETRANGE,R1
55 01 D0 0413 MOVL #1,R5
00AE 30 0416 BSBW EXPREGSUBR
0419 331 RANGECHK OFF
0010'CF 08 CA 0419 BICL #CTL$M RNGCHK,W^CTLFLG
041E 332 DELTVA INADR=W^RETRANGE ;DELETE WHAT WE CREATED
53 01 3C 041E MOVZWL S^$$$ NORMAL,R3
50 0008'CF DE 0421 MOVAL W^RETRANGE,R0
51 0008'CF DE 0426 MOVAL W^RETRANGE,R1
001C 30 042B BSBW DELTVASUBR
042E 333 RANGECHK ON
```

MMGEXPCNT  
V04-000

- TEST OF \$EXPREG/\$CNTREG SYSTEM SERVICE 16-SEP-1984 02:03:01 VAX/VMS Macro V04-00 Page 11  
FORCE ERRORS FROM EXPREG/CNTREG 5-SEP-1984 01:58:09 [MMGTST.SRC]MMGEXPCNT.MAR;1 (8)

0010'CF DB CB 042E

BISL #CTLSM\_RNGCHK,W^CTLFLG



			0433	335	:	
			0433	336	:	END OF LOOP
			0433	337	:	
OC 0024'CF	0020'CF	F3	0433	338		AOBLEQ W*MAXPASSCNT,W*PASSCNT,160\$
	50 01	D0	0438	339	150\$:	MOVL #1,RO
			043E	340		\$EXIT_S RO
	FEB0	31	0447	341	160\$:	BRW RSTART

```
044A 343 .SBTTL SUBROUTINES TO CALL THE SERVICES
044A 344 :
044A 345 : INPUT:
044A 346 :
044A 347 : R0 = INADR
044A 348 : R1 = RETADR
044A 349 : R3 = DESIRED STATUS
044A 350 :
044A 351 : OUTPUT:
044A 352 :
044A 353 : R2 PRESERVED
044A 354 :
044A 355 DELTVASUBR:
044A 356 $DELTVA_S (R0),(R1)
51 FDES CF DE 0457 357 MOVAL W^DELTVAERR,R1 ;ERROR CONTROL STRING
045C 358 BRB CHECK1
045E 359
045E 360 CHECK1:
53 53 50 D1 045E 361 CMPL R0,R3 ;STATUS AS DESIRED
0461 362 BEQL 10$ ;BRANCH IF YES
53 0244 8F B1 0463 363 CMPW #SS$ _VASFULL,R3 ;IF EXPECTING VIRTUAL ADDRESS SPACE FULL
0468 364 BNEQ 5$
50 50 1C B1 046A 365 CMPW #SS$ _EXQUOTA,R0 ;THEN EXCEEDS QUOTA MAY ALSO BE RETURNED
046D 366 BEQL 10$
54 04 AE DD 046F 367 5$: PUSHL R4
0471 368 MOVL 4(SP),R4 ;ADDRESS OF ERROR
0475 369 $FAO_S (R1),MSGLEN,MSGBUFD,R4,R0,R3,-
0475 370 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
04AB 371 POPR #^M<R4>
00FD 30 04AA 372 BSBW TYPEMSGBUF
05 04AD 373 RSB
04AE 374 10$:
007F 31 04AE 375 BRW RANGECHK ;GO CHECK THE RETURN RANGE
04B1 376
```

```
04B1 378 :  
04B1 379 : INPUT:  
04B1 380 :  
04B1 381 : R1 = RETADR  
04B1 382 : R3 = DESIRED STATUS  
04B1 383 : R4 = PAGCNT  
04B1 384 : R5 = REGION  
04B1 385 :  
04B1 386 : OUTPUT:  
04B1 387 :  
04B1 388 : R2 PRESERVED  
04B1 389 :  
04B1 390 : SCNTREGSUBR:  
04B1 391 : SCNTREG S R4, (R1), R5  
51 FD84 CF DE 04C0 392 : MOVAL -W^SCNTREGERR,R1 ;ERROR CONTROL STRING  
14 11 04C5 393 : BRB CHECK2  
04C7 394 :  
04C7 395 : INPUT:  
04C7 396 :  
04C7 397 : R1 = RETADR  
04C7 398 : R3 = DESIRED STATUS  
04C7 399 : R4 = PAGCNT  
04C7 400 : R5 = REGION  
04C7 401 :  
04C7 402 : OUTPUT:  
04C7 403 :  
04C7 404 : R2 PRESERVED  
04C7 405 :  
04C7 406 : SEXREGSUBR:  
51 FD76 CF DE 04D6 407 : SEXREG S R4, (R1), R5  
408 : MOVAL -W^SEXREGERR,R1 ;ERROR CONTROL STRING
```



```

      53  50  D1  04DB  410 CHECK2:
      39  13  04DB  411      CMPL  R0,R3          ;STATUS AS DESIRED?
      56  DD  04DE  412      BEQL  10$          ;BRANCH IF YES
      04  AE  DO  04E0  413      PUSHL R6
      56  04  AE  DO  04E2  414      MOVL  4(SP),R6      ;ADDRESS OF ERROR
      0040 8F  BA  04E6  415      $FAO,S (R1),MSGLEN,MSGBUFD,R6,R0,R3,R4,R5,-
      0092 30  0511  416      RETRANGE,RETRANGE+4
      0000'CF 0008'CF DO  0515  417      POPR  #M<R6>
      54  54  09  0518  418      BSBW  TYPEMSGBUF
      0004'CF 0000'CF DO  0519  419      RSB
      54  54  09  0520  420 10$: MOVL  W^RETRANGE,W^INRANGE      ;MAKE INPUT RANGE LOOK LIKE CRETVA/D
      0004'CF 0000'CF DO  0522  421      DECL  R4
      54  54  09  0522  422      ASHL  #9,R4,R4
      00  11  0526  423      ADDL3  R4,W^INRANGE,W^INRANGE+4
      00  11  0526  424      BRB  RANGECHK      ;AND CHECK THE RETURN RANGE
      00  11  0530  425
      73 0010'CF 03  E1  0530  426 RANGECHK:
      70  50  E9  0536  427      BBC  #CTLSV_RNGCHK,W^CTLFLG,40$      ;BRANCH IF RANGE CHECK IS DISABLED
      50  0000'CF 7D  0539  428      BLBC  R0,40$      ;IF ERROR IN SERVICE, SKIP THE RANGE
      51  50  D1  053E  429      MOVQ  W^INRANGE,R0      ;R0 = STARVA, R1 = ENDVA
      12  1A  0541  430      CMPL  R0,R1      ;WHICH DIRECTION?
      04  1F  0543  431      BGTRU  10$      ;BRANCH IF BACKWARDS
      0C  50  1E  E0  0545  432      BLSSU  5$      ;BRANCH IF FORWARDS
      0C  50  1E  E0  0545  433      BBS  #30,R0,10$      ;FOR EQUAL, P0 SPACE FORWARDS, P1 BA
      0549  434      :
      0549  435      : REQUESTED RANGE IS FORWARDS
      0549  436
      50  01FF 8F  AA  0549  437 5$: BICW  #^X1FF,R0      ;FROM BYTE 0 OF STARTVA
      51  01FF 8F  AB  054E  438      BISW  #^X1FF,R1      ;THROUGH LAST BYTE OF ENDVA
      0A  11  0553  439      BRB  20$      :
      0555  440      :
      0555  441      : GOING BACKWARDS IN VIRTUAL ADDRESS SPACE
      0555  442
      50  01FF 8F  AB  0555  443 10$: BISW  #^X1FF,R0      ;LAST BYTE OF STARTVA
      51  01FF 8F  AA  055A  444      BICW  #^X1FF,R1      ;THROUGH FIRST BYTE OF ENDVA
      0008'CF 50  D1  055F  445 20$: CMPL  R0,W^RETRANGE      ;IS THIS WHAT WAS RETURNED?
      07  12  0564  446      BNEQ  30$      ;BRANCH IF NOT, ERROR
      000C'CF 51  D1  0566  447      CMPL  R1,W^RETRANGE+4      ;THIS ONE OK TOO?
      3C  13  0568  448      BEQL  40$      ;BRANCH IF YES, RANGE OK
      53  04  AE  DO  056D  449 30$: PUSHL R3      ;SAVE REGISTER
      53  04  AE  DO  056F  450      MOVL  4(SP),R3      ;TO USE FOR ERROR PC
      0573  451      $FAO,S <W^RANGERR>,MSGLEN,MSGBUFD,R3,-      ;FORMAT THE ERROR MESSAGE
      0573  452      INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
      08  BA  05A4  453      POPR  #M<R3>      ;RESTORE SAVE REGISTER
      0001 30  05A6  454      BSBW  TYPEMSGBUF      ;OUTPUT THE ERROR MESSAGE
      05  05A9  455 40$: RSB      ;AND RETURN
```

```
05AA 457 .SBTTL MISCELLANEOUS SUBROUTINES
05AA 458 :
05AA 459 : TYPE A MESSAGE
05AA 460 : MSGBUF IS THE ADDRESS OF THE BEGINNING OF THE STRING
05AA 461 : MSGLEN CONTAINS THE SIZE (IN BYTES) OF THE STRING
05AA 462 :
05AA 463 TYPEMSGBUF:
05AA 464 MOVL W^MSGLEN,R0 ;SIZE TO R0
05AF 465 MOVAL W^MSGBUF,R1 ;ADDRESS TO R1
05B4 466 BBC #CTL$V PIDMSG,W^CTLFLG,5$ ;BRANCH IF NO PROCESS ID REQUIRED
05BA 467 MOVAL W^MSGBUFID,R1 ;ADDRESS INCLUDING PID MSG
05BF 468 ADDL S^#<MSGBUF-MSGBUFID>,R0 ;INCLUDE EXTRA BYTES IN COUNT
05C2 469 5$:
05C2 470 MOVL R1,W^RAB+RAB$L_RBF ;SET BUFFER ADDRESS
05C7 471 MOVW R0,W^RAB+RAB$W_RSZ ;AND SIZE
05CC 472 $PUT W^RAB ;OUTPUT THE MESSAGE
05D7 473 BLBC R0,20$
05DA 474 RSB
05DB 475 20$: $EXIT,S R0 ;EXIT WITH ERROR STATUS
05E4 476 :
05E4 477 : TEST FOR DEMAND ZEROING
05E4 478 : RETRANGE CONTAINS RANGE TO BE TESTED
05E4 479 :
05E4 480 DMDZERTST:
05E4 481 MOVL RETRANGE,R0 ;GET ADDR TO START ON
05EB 482 5$: TSTL (R0) ;CHECK A LONGWORD
05ED 483 BNEQU 10$
05EF 484 ACBL RETRANGE+4,#4,R0,5$ ;AND LOOP
05F9 485 RSB
05FA 486 10$: $FAO,S <W^DMDZERR>,MSGLEN,MSGBUFD ;FORMAT THE ERROR MESSAGE
0611 487 BSBW TYPEMSGBUF ;OUTPUT IT
0614 488 RSB ;AND RETURN
0615 489
0615 490 .END START
```

50 00DC'CF DO 05AA 457  
51 00FE'CF DE 05AA 458  
08 0010'CF 02 E1 05AA 459  
51 00F0'CF DE 05AA 460  
50 0E' CO 05AA 461  
00C0'CF 51 DO 05AA 462  
00BA'CF 50 BO 05AF 463  
01 50 E9 05B4 464  
05 05BA 465  
05 05BF 466  
05 05C2 467  
05 05C7 468  
05 05CC 469  
05 05D7 470  
05 05DA 471  
05 05DB 472  
05 05E4 473  
05 05E4 474  
05 05E4 475  
05 05E4 476  
05 05E4 477  
05 05E4 478  
05 05E4 479  
50 00000003'EF DO 05E4 480  
60 D5 05E4 481  
0B 12 05EB 482  
FFF2 50 04 0000000C'EF F1 05ED 483  
05 05EF 484  
05 05F9 485  
FF96 30 05FA 486  
05 0611 487  
05 0614 488  
05 0615 489  
05 0615 490

MMGEXPCNT  
Symbol table

G 7

- TEST OF \$EXPREG/\$CNTREG SYSTEM SERVICE

16-SEP-1984 02:03:01 VAX/VMS Macro V04-00 Page 17  
5-SEP-1984 01:58:09 [MMGTST.SRC]MMGEXPCNT.MAR;1 (13)

\$\$TAB	= 00000098	R	02
\$\$TABEND	= 000000DC	R	02
\$\$TMP	= 00000000		
\$\$TMP1	= 00000001		
\$\$TMP2	= 000000CF		
\$\$T1	= 00000000		
\$\$T2	= 00000003		
BIT...	= 00000004		
CHECK1	0000045E	R	05
CHECK2	000004DB	R	05
CNTREGERR	00000248	R	05
CNTREGERRADR	00000068	R	05
CNTREGERRSIZ	= 00000072		
CNTREGSUBR	000004B1	R	05
CRLF	000000F0	R	02
CTLSM_MEMLOOP	= 00000001		
CTLSM_PIDMSG	= 00000004		
CTLSM_RNGCHK	= 00000008		
CTLSM_TSTLOOP	= 00000002		
CTLSV_MEMLOOP	= 00000000		
CTLSV_PIDMSG	= 00000002		
CTLSV_RNGCHK	= 00000003		
CTLSV_TSTLOOP	= 00000001		
CTLFLG	00000010	R	02
DELTVAERR	00000240	R	05
DELTVAERRADR	0000000A	R	05
DELTVAERRSIZ	= 00000061		
DELTVASUBR	0000044A	R	05
DMDZERR	00000260	R	05
DMDZERRADR	0000019E	R	05
DMDZERRSIZ	= 00000020		
DMDZERTST	000005E4	R	05
EXPREGERR	00000250	R	05
EXPREGERRADR	000000DD	R	05
EXPREGERRSIZ	= 00000072		
EXPREGSUBR	000004C7	R	05
FAB	00000048	R	02
FAB\$C_BID	= 00000003		
FAB\$C_BLN	= 00000050		
FAB\$C_SEQ	= 00000000		
FAB\$C_VAR	= 00000002		
FAB\$C_ALQ	= 00000010		
FAB\$C_FOP	= 00000004		
FAB\$V_CHAN_MODE	= 00000002		
FAB\$V_FILE_MODE	= 00000004		
FAB\$V_LNM_MODE	= 00000000		
FAB\$V_PUT	= 00000000		
FAB\$W_GBC	= 00000048		
HIGHPOADR	00000018	R	02
IDMSG	00000268	R	05
IDMSGADR	000001BE	R	05
IDMSGSIZ	= 00000039		
INRANGE	00000000	R	02
MAXPASSCNT	00000020	R	02
MSGBUF	000000FE	R	02
MSGBUFD	000000E0	R	02
MSGBUFD	000000F0	R	02

MSGBUFSIZ	= 000000A0		
MSGLEN	000000DC	R	02
OUTNAMADR	00000000	R	05
OUTNAMSIZ	= 0000000A		
PASSCNT	00000024	R	02
PID	0000001C	R	02
PIDCTL	00000278	R	05
PIDCTLADR	0000023A	R	05
PIDCTLSIZ	= 00000003		
PIDMSG	000000FA	R	02
PIDMSGD	000000E8	R	02
PREVPROT	00000048	R	02
PRT\$C_NONE	= 00000010		
RAB	00000098	R	02
RAB\$B_RAC	= 0000001E		
RAB\$C_BID	= 00000001		
RAB\$C_BLN	= 00000044		
RAB\$C_SEQ	= 00000000		
RAB\$C_CTX	= 00000018		
RAB\$C_RBF	= 00000028		
RAB\$C_RBP	= 00000004		
RAB\$C_RSZ	= 00000022		
RANGECHK	00000530	R	05
RANGERR	00000258	R	05
RANGERRADR	0000014F	R	05
RANGERRSIZ	= 0000004F		
RDPAGES	00000000	R	04
RETRANGE	00000008	R	02
RSTART	000002FA	R	05
RUN1_MSG	00000270	R	05
RUN1_MSGADR	000001F7	R	05
RUN1_MSGSIZ	= 00000043		
SAVEID	00000014	R	02
SIZ...	= 00000001		
SS\$ACCPIO	= 0000000C		
SS\$EXQUOTA	= 0000001C		
SS\$ILLPAGCNT	= 000000FC		
SS\$NORMAL	= 00000001		
SS\$VASFULL	= 00000244		
START	00000280	R	05
SYSSCNTREG	*****	GX	05
SYSSCONNECT	*****	GX	05
SYSSDELTVA	*****	GX	05
SYSS\$EXIT	*****	GX	05
SYSS\$EXPREG	*****	GX	05
SYSS\$FAO	*****	X	05
SYSS\$OPEN	*****	GX	05
SYSS\$PUT	*****	GX	05
SYSS\$RESUME	*****	GX	05
TYPEMSGBUF	000005AA	R	05
WRKSETDEF	0000002C	R	02
WRKSETLIM	00000028	R	02
WRKSETMAX	= 00000034	R	02
WRKSETMAXADD	00000044	R	02
WRKSETMIN	= 0000003C	R	02
WRTPAGES	00000000	R	05



+-----+  
! Psect synopsis !  
+-----+

PSECT name	Allocation	PSECT No.	Attributes
ABS	00000000 ( 0.)	00 ( 0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
\$ABSS	00000000 ( 0.)	01 ( 1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
DATA0	0000019E ( 414.)	02 ( 2.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC PAGE
DATA1	00000800 ( 2048.)	03 ( 3.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC PAGE
DATA2	00000800 ( 2048.)	04 ( 4.)	NOPIC USR CON REL LCL NOSHR NOEXE RD NOWRT NOVEC PAGE
CODE	00000615 ( 1557.)	05 ( 5.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC PAGE

+-----+  
! Performance indicators !  
+-----+

Phase	Page faults	CPU Time	Elapsed Time
Initialization	17	00:00:00.07	00:00:01.69
Command processing	87	00:00:00.80	00:00:04.16
Pass 1	305	00:00:10.78	00:00:39.16
Symbol table sort	0	00:00:01.21	00:00:03.71
Pass 2	109	00:00:02.42	00:00:06.24
Symbol table output	13	00:00:00.10	00:00:00.10
Psect synopsis output	3	00:00:00.03	00:00:00.05
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	536	00:00:15.41	00:00:55.11

The working set limit was 1200 pages.

61911 bytes (121 pages) of virtual memory were used to buffer the intermediate code.

There were 50 pages of symbol table space allocated to hold 866 non-local and 16 local symbols.

490 source lines were read in Pass 1, producing 23 object records in Pass 2.

41 pages of virtual memory were used to define 34 macros.

+-----+  
! Macro library statistics !  
+-----+

Macro library name	Macros defined
\$255\$DUA28:[SYS.OBJ]LIB.MLB;1	0
\$255\$DUA28:[SYSLIB]STARLET.MLB;2	25
TOTALS (all libraries)	25

1120 GETS were required to define 25 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:MMGEXPCNT/OBJ=OBJ\$:MMGEXPCNT MSRC\$:MMGEXPCNT/UPDATE=(ENH\$:MMGEXPCNT)+EXECML\$/LIB



0236

AH-BT13A-SE  
 VAX/VMS V4.0

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